TABLE 2.—*Instrumental seismological reports, September, 1920*—Contd.

Date.	Character.	Phase.	Time.	Period T.	Amplitude. A_E	Amplitude. A_N	Distance.	Remarks.
			CANADA. *Dominion Meterological Service, Victoria.*					
1920.			*H. m. s.*	*Sec.*	*μ*	*μ*	*Km.*	
Sept. 1	.....	P.....	3 03 13	.....	.....	.....	.....	
		M.....	3 08 37	.....	*200	.....	.....	
		F.....	3 17 28	.....	.....	.....	.....	
4	.....	P.....	14 58 02	.....	.....	.....	.....	
		M.....	15 32 58	.....	*200	.....	.....	
		F.....	16 22 38	.....	.....	.....	.....	
7	.....	P?.....	6 28 14	.....	.....	.....	.....	
		L.....	6 35 07	.....	.....	.....	.....	
		M.....	6 39 48	.....	*300	.....	.....	
		F.....	6 49 22	.....	.....	.....	.....	
8	.....	S.....	1? 58 47	.....	.....	.....	.....	
		L.....	2 08 38	.....	.....	.....	.....	
		eL.....	2 15 09	.....	.....	.....	.....	
		M.....	2 17 58	.....	*500	.....	.....	
		F.....	3 16 00	.....	.....	.....	.....	
9	.....	P.....	19 09 11	.....	.....	.....	8570	
		S.....	19 19 01	.....	.....	.....	.....	
		L.....	19 31 48	.....	.....	.....	.....	
		M.....	19 37 13	.....	*500	.....	.....	
		F.....	21 42 08	.....	.....	.....	.....	
18	.....	M.....	0 27 09	.....	*200	.....	.....	
20	.....	P.....	14 51 26	.....	.....	.....	2390	Alaska.
		S.....	14 55 22	.....	.....	.....	.....	
		L.....	15 02 16	.....	.....	.....	.....	
		M_1.....	15 23 54	.....	*5500	.....	.....	
		M_2.....	15 31 07	.....	*5500	.....	.....	
		eL.....	16 54 30	.....	.....	.....	.....	
		eL.....	17 06 24	.....	.....	.....	.....	
		M.....	17 13 12	.....	*2000	.....	.....	
		F.....	18 44 33	.....	.....	.....	.....	
				VERTICAL.				
		P.....	*14 51 30*	*2*	.....	.....	*2630*	
		S.....	*14 55 45*	*7*	.....	.....	.....	
		L.....	*15 02 30*	.....	.....	.....	.....	
		M.....	*15 19 31*	*30*	.....	*10*	.....	
24	.....	L.....	5 49 46	.....	.....	.....	.....	
		M.....	5 53 42	.....	*100	.....	.....	
24	.....	P.....	22 12 29	.....	.....	.....	.....	
		L.....	22 22 19	.....	.....	.....	.....	
		M.....	22 29 32	.....	*500	.....	.....	
		F.....	22 46 24	.....	.....	.....	.....	
27	.....	P?.....	5 35 16	.....	.....	.....	1400	Real P may not be recorded. Alaska.
		L.....	5 37 43	.....	.....	.....	.....	
		M.....	5 41 10	.....	*500	.....	.....	
		F.....	5 50 30	.....	.....	.....	.....	

*Trace amplitude.

Reports for September, 1920, have not been received from the following stations:

ALABAMA. *Spring Hill College*, Mobile.
ALASKA. *U. S. C. & G. S. Magnetic Observatory*, Sitka.
ARIZONA. *U. S. C. & G. S. Magnetic Observatory*, Tucson.
DISTRICT OF COLUMBIA. *Georgetown University*, Washington.
HAWAII. *U. S. C. & G. S. Magnetic Observatory*, Honolulu.
KANSAS. *University of Kansas*, Lawrence.
MARYLAND. *U. S. C. & G. S. Magnetic Observatory*, Cheltenham.
MASSACHUSETTS. *Harvard University*, Cambridge.
MISSOURI. *St. Louis University*, St. Louis.
NEW YORK. *Canisius College*, Buffalo; *Fordham University*, New York.
PORTO RICO. *U. S. C. & G. S. Magnetic Observatory*, Vieques.

SEISMOLOGICAL DISPATCHES.[1]

Los Angeles, September 3.

A light earthquake shock was felt in outlying parts of the city early to-day. No damage was reported.—*Associated Press.*

[1] Collected by seismological station, Georgetown University, Washington, D. C.

London, September 7.

The town of Fivizzano, 34 miles northwest of Lucca, has been completely demolished by an earthquake, according to a Spezia dispatch to the Exchange Telegraph. The dispatch adds that Solero and Monte were badly wrecked.—*Associated Press.*

Rome, September 7.

The earthquake in northern Italy was of a violent nature. Villa Collemandina is reported to have been destroyed. Castiglione, Pieve Fosciano, Vaglia, Camporgiano, San Donnino, Piasza Alserchio, Poggio, Castegnola, Fosciendora, and Canigiano have been badly damaged.—*Associated Press.*

Pisa, Italy, September 7.

The earthquake shock here was preceded by deep rumblings and followed by vertical and horizontal earth tremors which lasted for 13 seconds. The hands of the clock in the tower stopped at 7.55 o'clock this morning.—*Associated Press.*

Rome, September 9.

Another violent earthquake occurred in the Emilia district at 2.35 o'clock this morning, causing loss of lives and important damage. The communities suffering the most were Reggio, Ospedaletti, Bussana, Toano, and Cavola. This morning's shock was more violent than that of Tuesday. The Epoca estimates that the dead in the earthquake of Tuesday exceed 500 and the homeless more than 20,000.—*Associated Press.*

Riverside, Calif., September 10.

An earthquake shock was felt here this morning about 5.16. It was of sufficient violence to awaken sleepers and many persons fled into the open until the tremors subsided. No damage was reported.—*Associated Press.*

Rome, September 10.

Earthquake shocks continue, causing more victims among the rescuers owing to falling masonry. To-day there were shocks as far south as Cassino, near Naples. Apparently there was no serious damage nor victims, but the shocks produced great panic among the population, which recalled its experiences in the earthquake of 1915. A volcanic crater has suddenly opened at the top of Pizzo d'Ucello, a mountain 5,845 feet high about 9 miles northeast of Spezia. It is located on what appears to be the northeast corner of the district shaken by Tuesday morning's earthquake, which resulted in the loss of hundreds of lives in the region just north of Florence. A telegram from Spezia states the crater is emitting smoke and sulphuric fumes and that scientists there attribute the volcanic outbreak to the earthquake.—*Associated Press.*

Geneva, Switzerland, September 10.

A severe earthquake shook the southern slopes of the Swiss and Italian Alps yesterday from Monterosa to Bernina Pass, causing avalanches. The shock was accompanied by heavy snowfalls, and several Alpine villages are isolated. Four persons are reported to have been killed and many injured. Slighter shocks also were reported in the Swiss Alps around Zermatt and Ponterosina, but there were no casualties.—*Associated Press.*

Rome, September 10.

Minor earthquake shocks which have been felt since Tuesday morning in the devastated zone north of Florence indicate the disturbance is subsiding, according to Father Alfani, director of the observatory here. He

said that small shocks succeeding each other rather frequently show the seismic phenomena are wearing out. "The shocks in the present case," he declared, "are to be considered as good omens as indicating that no serious recurrence of the earthquake may be expected."—*Associated Press.*

Berlin, September 10.

The seismographic station at Jeno suggests as the possible cause of the Italian earthquake a sinking of the earth along the mountains bordering the Gulf of Genoa. Experts there say it indicates a massive caving zone in the earth's crust.—*Associated Press.*

Comrie, County of Perth, Scotland, September 13.

An earthquake shock was experienced here this morning. The inhabitants were awakened when their beds and furniture were shaken by the shock. A dull rumbling sound accompanied the shock.—*Associated Press.*

Rome, September 15.

Scientists say they do not believe that a new volcano was created on Mount Pisanino, near Spezia, during the earthquakes which began September 7 and continued until September 9 causing the loss of 500 lives. Tongues of flame and smoke or dust were seen to be emitted from what is popularly supposed to have been a new crater opened near the mountain top. Frank A. Perrett, the American volcanologist for the Carnegie Institution who occupies a station at Mount Vesuvius to observe its operations, has expressed to the Associated Press the opinion that no new volcano has been formed but that the earthquakes caused displacements of subterranean strata causing a fissure in the earth's crust and that gas escaping therefrom was mistaken by onlookers as the opening of a new crater.—*Associated Press.*

Vienna, September 23.

Slow moving landslides covering considerable territory are doing considerable damage in the Sandling Alps of upper Austria. The entire mountain surface apparently is settling into the Leisling Valley. Many huts have been destroyed, and hamlets, forests and fields are moving bodily, accompanied by tremendous noises.—*Associated Press.*

London, September 27.

A violent earthquake is reported to have occurred at Giarre, Sicily, according to a Rome dispatch to the Exchange Telegraph Co. Giarre lies at the base of Mount Etna. The quake lasted 10 seconds. One village was destroyed and many persons were injured.—*Associated Press.*

Madrid, September 28.

Widespread alarm was caused in the vicinity of Crihuela, about 35 miles north of Cartagena, when a sharp earth shock occurred at 10.45 o'clock Sunday night, according to advices received here. Many families passed the night in the fields, fearing a repetition.—*Associated Press.*

Catania, Sicily, September 29.

Relief measures for the victims of the earthquake near here on Sunday are being expedited, and many persons injured during the disaster have been rescued from the ruins. The shock was most violent at Giarre, and the village of Codadivolpe, nearby, was demolished. The damage throughout the district was enormous.—*Associated Press.*

LATE REPORTS.

TABLE 2—*Instrumental reports.*

Date.	Character.	Phase.	Time.	Period T.	Amplitude. A_E	Amplitude. A_N	Distance.	Remarks.
DISTRICT OF COLUMBIA. *Georgetown University, Washington.*								
1920.			*H. m. s.*	*Sec.*	μ	μ	*Km.*	
Aug. 3	.....	e_E	3 24 —	.....	.....	.....	.....	
		e_N	3 24 —	.....	.....	.....	.....	
		F	3 35 —	.....	.....	.....	.....	
3	.....	eP_E	20 08 11	.....	.....	.....	.....	
		eP_N	20 08 11	.....	.....	.....	.....	
		S_E	20 17 11	.....	.....	.....	.....	
		S_N	20 17 11	.....	.....	.....	.....	
		eL	20 28 12	.....	.....	.....	.....	
		L	20 31 37	26	.....	.....	.....	
		F	21 20 —	.....	.....	.....	.....	
13	.....	e_E	8 37 10	.....	.....	.....	.....	Heavy micros.
		L_E	9 25 11	18	.....	.....	.....	
		L_N	9 25 10	17	.....	.....	.....	
		F	10 30 —	.....	.....	.....	.....	
20	.....	eL_E	16 56 12	24	.....	.....	.....	Sheets taken off at 16h 21m, put on at 16h 29m, quake then in progress.
		eL_N?	16 56 00	24	.....	.....	.....	
		L_E	17 03 —	11	.....	.....	.....	
		L_N	17 01 16	16	.....	.....	.....	
		F	18 — —	.....	.....	.....	.....	
26	.....	iP_E	23 10 13	.....	.....	.....	.....	
		iP_N	23 10 14	.....	.....	.....	.....	
		S_E	23 18 31	.....	.....	.....	.....	
		eL	23 30 —	.....	.....	.....	.....	
		L_E	23 33 —	9	.....	.....	.....	
		L_N	23 34 11	20	.....	.....	.....	
27	.....	F	0 30 —	.....	.....	.....	.....	
NEW YORK. *Cornell University, Ithaca.*								
1920.			*H. m. s.*	*Sec.*	μ	μ	*Km.*	
June 2	.....	e_E	22 13 30	4	.....	.....	.....	Irregular, short period waves.
		L	22 18 14	21	.....	.....	.....	
		F	22 36 —	.....	.....	.....	.....	
4	.....	e	15 41 —	.....	.....	.....	.....	
		F	16 02 —	.....	.....	.....	.....	
5	.....	P	4 39 25	4	.....	.....	.....	
		L	5 12 20	35	.....	.....	.....	
		F	6 20 —	.....	.....	.....	.....	
18	.....	e	10 25 30	4	.....	.....	.....	
		F	10 34 30	.....	.....	.....	.....	
22	.....	e	3 05 30	10	.....	.....	.....	
		F	3 13 —	.....	.....	.....	.....	
July 2	.....	L	19 40 —	24	.....	.....	.....	
		F	19 58 —	.....	.....	.....	.....	
7	.....	.....	.....	.....	.....	.....	.....	Quake after 18 hr.; seismograph out of order.
8	.....	e	1 00 09	3	.....	.....	.....	
		L	1 03 02	7	.....	.....	.....	
		F	1 07 —	.....	.....	.....	.....	
Aug. 3	.....	.....	.....	.....	.....	.....	.....	Time marker not recording; beginning 20 hr. *ca.*, L–S 12 min, *ca.*
13	.....	e	2 13 —	4	.....	.....	.....	
		F	2 24 —	.....	.....	.....	.....	
15	.....	eL	9 09 —	28	.....	.....	.....	
		F	9 16 —	.....	.....	.....	.....	
20	.....	eP	16 27 10	4	.....	.....	.....	
		S	16 37 12	6	.....	.....	.....	
		L	16 51 38	38	.....	.....	.....	
		F	18 08 —	.....	.....	.....	.....	

TABLE 2.—*Instrumental reports*—Continued.

CANADA. *Dominion Meteorological Service, Toronto.*

Date.	Character.	Phase.	Time.	Period T.	Amplitude. A_E	Amplitude. A_N	Distance.	Remarks.
			H. m. s.	*Sec.*	μ	μ	*Km.*	
1920. Aug. 3	.....	L?....	3 20 48	.....	*200	.....	.....	Micros going on.
3	.....	P?....	20 06 36	.....	.....	.....	.....	P preceded by minute micros.
		iP?...	20 11 24	.....	.....	.....	.....	
		iS.....	20 19 12	.....	.....	.....	.....	
		eL....	20 33 18	.....	.....	.....	.....	
		eL....	20 42 30	.....	.....	.....	.....	
		M.....	20 47 30	.....	*1400	.....	.....	
		eL....	20 55 36	.....	.....	.....	.....	
		eL....	21 11 12	.....	.....	.....	.....	
		F.....	.....	.....	.....	.....	.....	Micros.
11	.....	eL....	20 13 24	.....	.....	.....	.....	Micros going on.
		eL....	20 14 24	.....	.....	.....	.....	
		M.....	20 15 36	.....	*800	.....	.....	
		F.....	.....	.....	.....	.....	.....	Micros.
12	.....	eL....	6 39 30	.....	.....	.....	.....	
		M.....	6 42 06	.....	*200	.....	.....	
		F.....	6 45 54	.....	.....	.....	.....	Gradual thickening.
13	.....	i?.....	2 12 18	.....	.....	.....	.....	
		L.....	2 22 00	.....	.....	.....	.....	
		M.....	2 23 18	.....	*200	.....	.....	
		F.....	2 32 30	.....	.....	.....	.....	
15	.....	S.....	8 46 54	.....	.....	.....	.....	
		M.....	8 49 42	.....	*700	.....	.....	
		L.....	9 02 42	.....	.....	.....	.....	
		eL....	9 21 12	.....	.....	.....	.....	
		eL....	9 28 48	.....	.....	.....	.....	
		F.....	10 45 30	.....	.....	.....	.....	
20	.....	L.....	17 02 24	.....	.....	.....	.....	Light turned down 16:38 to change paper.
		eL....	17 08 36	.....	.....	.....	.....	
		M.....	17 10 18	.....	*700	.....	.....	
		eL....	17 21 24	.....	.....	.....	.....	
		F.....	17 38 48	.....	.....	.....	.....	
26	.....	L.....	22 53 48	.....	*200	.....	.....	May not be seismic.
		F.....	22 56 48	.....	.....	.....	.....	
26	.....	P.....	23?09 06	.....	.....	.....	.....	
		i.....	23 12 42	.....	.....	.....	.....	
		S.....	23 17 24	.....	.....	.....	.....	
		eL....	23 32 48	.....	.....	.....	.....	
		M.....	23 39 48	.....	*800	.....	.....	
		F.....	1?21 12	.....	.....	.....	.....	
29	.....	eL....	11 53 48	.....	.....	.....	.....	
		M.....	11 57 18	.....	*200	.....	.....	
		F.....	12 01 12	.....	.....	.....	.....	

• Trace amplitude.

CANADA. *Dominion Meteorological Service, Victoria.*

Date.	Character.	Phase.	Time.	Period T.	Amplitude. A_E	Amplitude. A_N	Distance.	Remarks.
			H. m. s.	*Sec.*	μ	μ	*Km.*	
1920. Aug. 3	.....	P.....	3?18 42	.....	.....	.....	.....	
		S.....	3?26 34	.....	.....	.....	.....	
		L.....	3?41 19	.....	.....	.....	.....	
		M.....	3 53 05	.....	*100	.....	6300?	
		F.....	4 30 30	.....	.....	.....	.....	
3	.....	P?....	20 20 42	.....	.....	.....	3620?	Probably from Aleutian Islands. Fine marks indistinct.
		S?....	20 26 07	.....	.....	.....	.....	
		L.....	20 34 28	.....	.....	.....	.....	
		M.....	20 41 21	.....	*1500	.....	.....	
		F.....	22 44 18	.....	.....	.....	.....	
11	.....	P.....	20 38 51	.....	.....	.....	.....	
		L.....	20 41 45	.....	.....	.....	.....	
		M.....	20 44 42	.....	*200	.....	.....	
		F.....	20 51 35	.....	.....	.....	.....	
12	.....	P.....	6?51 35	.....	.....	.....	.....	
		M.....	6 58 28	.....	*200	.....	.....	
		F.....	7 09 48	.....	.....	.....	.....	
15	.....	P.....	8 28 05	.....	.....	.....	.....	
		L.....	8 38 54	.....	.....	.....	.....	
		M.....	8 45 47	.....	*600	.....	.....	
		F.....	10 57 36	.....	.....	.....	.....	
17	.....	M.....	3 17 14	.....	*50	.....	.....	
20	.....	P.....	16 39 08	.....	.....	.....	.....	
		S.....	16 47 30	.....	.....	.....	.....	
		L.....	16 58 19	.....	.....	.....	.....	
		M.....	17 06 41	.....	*600	.....	6860	
		F.....	18 58 48	.....	.....	.....	.....	
25	.....	M.....	22 44 39	.....	*200	.....	.....	
26	.....	P.....	23 01 09	.....	.....	.....	3170	
		S.....	23 06 04	.....	.....	.....	.....	
		L.....	23 10 30	.....	.....	.....	.....	
		M.....	23 15 25	.....	*1000	.....	.....	
27	.....	F.....	0 08 32	.....	.....	.....	.....	

• Trace amplitude.